

ABSTRACT

Typical road surfaces are concrete, and gravel filled asphalt. They are very abrasive to fabrics that slide on those surfaces. For the new side impact curtain-type airbag, in a rollover situation, the airbag needs to protect the occupant from directly contacting the road hazard and should not deflate quickly or break when sliding on such road surfaces. We have found that a layer of elastomer can provide much better abrasion resistance than a layer of heavy industrial fabric. A Jacquard bag coated with 1.2 oz/yd² polyurethane showed significant increase in air leakage rate after 5 cycles of concrete sliding abrasion.

A 3 mil thick polyurethane film was laminated to the coated Jacquard woven airbag. After 110 cycles of sliding abrasion using the same concrete, no visual damage or change in bag leakage was observed. This finding indicates surprisingly better abrasion resistance of a thin elastomer film than a heavy industrial fabric.